

# Kennedy Space Center

## Launch Systems Testbed

### *Putting Kennedy Space Center to Work for you*

The launch of a space vehicle generates extreme environmental conditions that can affect the launch pad, the launch vehicle, and payloads. The Launch Systems Testbed (LST) uses KSC test and analysis capabilities to develop innovative ways to deal with these extreme conditions and to maximize the safety and efficiency of launch and payload processing systems. NASA has designated KSC as the *Center of Excellence* for launch and payload processing systems.

One key objective of the LST is the development of accurate, validated analytical models that can predict launch environments and corresponding structural responses. Also key is to simulate scaled launch environments to test and evaluate launch pad designs for existing and future space vehicles.

### **Benefits**

Our expertise can be used to ensure sound, safe, and efficient techniques are in place for private/commercial space vehicle design and processing. We can help increase the operational knowledge in the design/development of payloads and new vehicles. Your company or organization can be a partner in developing new technologies for future space initiatives. The LST is continually increasing core capabilities to meet varying customer needs and demands.



## Capabilities

The LST performs research to increase understanding of launch environments and to advance associated technologies. We also test and develop conceptual launch structures/launch structure improvements and develop, improve, and validate analytical methodologies. Your company or organization can now take advantage of the unique research tools located at the LST.

### Our capabilities include:

- Specialized personnel with computational fluid dynamics, acoustics, structural dynamics, vibration, test, and launch environment data analysis experience
- Launch environments prediction and structural analysis tools
- A unique trajectory simulation mechanism to simulate launch effects
- A historical database containing environmental measurements (acoustics, vibration, strain, etc.) from more than 100 launches



## Goals

- Accurately predict and define the environments created by a launch vehicle
- Identify research technologies to reduce/eliminate the detrimental effects of the launch environment
- Identify research technologies to optimize launch structures for the launch environment
- Develop these technologies to prototype/demo state
- Integrate these technologies into existing or future launch systems

For more information contact:

Melanie Chan

NASA, Mail Code: YA-C2,

Kennedy Space Center, FL 32899

Phone: (321) 867-6367, E-Mail:

*Melanie.Chan-1@ksc.nasa.gov*

